

ABSTRACT OF THE DISCLOSURE

A two-optical signal generator is provided for generating two optical signals, where a difference between optical frequencies or optical wavelength of the two optical signals can be adjusted. A first optical modulator modulates a single-mode optical signal generated by a first light source according to an inputted signal, and outputs a modulated optical signal including predetermined specific two optical signals having a predetermined optical frequency difference, while a second light source generates a multi-mode optical signal including predetermined two further optical signals having substantially the same wavelengths as those of the predetermined specific two optical signals of the modulated optical signal, respectively. Then an optical injection device optically injects the modulated optical signal into the second light source, and the predetermined specific two optical signals of the modulated optical signal are injection-locked into the predetermined two further optical signals of the multi-mode optical signal, so that the second light source generates an injection-locked predetermined specific two optical signals.